

Protected food, drink or agricultural product name

# Product specification for ORÉGANO DE TACNA

## A protected designation of origin (PDO)

Responsible country: Peru

This document sets out the elements of the product specification for information purposes.

## Competent Authority

The National Institute for the Defense of Competition and Protection of Intellectual Property (INDECOPI) is the Peruvian authority in charge of running the scheme of the appellations of origin and geographical indications.

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## Applicant group

Name: The Orégano de Tacna's application was submitted by Consejo Regulador de la Denominación de Origen Orégano de Tacna, from Peru. However, it must be noted that according to the Peruvian legislation, the Peruvian State is the exclusive owner of the Peruvian appellations of origin and geographical indications.

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# Type of product (as in Annex XI implementing Regulation 668/2014)

Other products listed in Annex 1 to the Treaty (species, etc.) [class 1.8]

## 1. Product name

Orégano de Tacna

## 2. Description

The PDO Orégano de Tacna identifies dried oregano obtained from leaves and floral tops of oregano plants of the Nigra Común, Orégano Mejorado and Oreja de Elefante morphotypes, of the variety *Origanum Vulgare* L. and that is processed appropriately; being subjected to operations such as drying, destemming, cleaning, classification and packaging.

The PDO Orégano de Tacna has particular characteristics linked to its geographical origin; and essentially to the combination of the natural factors of the delimited production area, with the know-how of the producers and/or processors.

Regarding the natural factors, we have the altitude of the production area, the sandy loam soil, the semi-arid climate, the extreme temperatures with high variation between day and night, the low percentage of humidity, the high percentage of hours of sunshine, the scarce rainfall, and the presence of natural water sources (springs).

Regarding the human factors, we have the continued implementation of agricultural techniques and practices by producers, some of them ancestral such as the use of terraces, there is also sowing in furrows, bi-annual harvests, the use of organic matter as fertilizer and fungicide, the induction of water stress, as well as the work of harvesting, drying, thrashing, and destemming of the product.

Next, a review of the organoleptic and bromatological characteristics of the PDO Orégano de Tacna:

- *Organoleptic characteristics of the PDO Orégano de Tacna*

It is characterized by having an intense aroma considered very aromatic, mild bitter flavor, a predominantly deep green color leaf to pale green color leaf, and an intermediate texture between brittle and elastic.

- *Bromatological characteristics of the PDO Orégano de Tacna*

The percentage of fats and lipids that range from 3.04% to 3.53 and the higher percentage of essential oil (volatile oil) above 1.5%, turns out to be decisive for its individualization.

Moreover, the predominant presence of the essential oils Timol ( $\geq 19.95$ ) and Carvacrol ( $\leq 1.4$ ) is also important.

Bromatological characteristics		
95% accuracy	Lowest value (%)	Highest value (%)
Fats or lipids ( $3.29 \pm 0.44$ )	3.04	3.53
Proteins ( $9.29 \pm 1.63$ )	8.61	10.42
Fiber ( $8.02 \pm 2.13$ )	6.84	9.21
Ash ( $9.67 \pm 1.69$ )	8.73	10.61
Carbohydrates ( $67.52 \pm 3.09$ )	65.81	69.23
Timol	19.95	> 19.95
Carvacrol	< 1.04	1.04
Volatile oil	> 1.5%	

### 3. Geographical area

The production area of the PDO Orégano de Tacna is located between 2500 to 3800 meters above sea level; it includes the 4 provinces of the Tacna Region, 15 districts and 36 zones, all delimited as follows:

- Province of Tacna; the districts of Palca and Pachía - producing areas: Vilavilani, Palca, Alto Ingenio, Caplina, Ataspaca, Challaviento, Toquela and Ancoma.
- Tarata Province; the districts of Estique, Estique Pampa, Tarucachi, Tarata, Ticaco, Sitajara and Susapaya – producing areas: Estique Pampa, Talabaya, Tarucachi, Tarata, Ticaco, Challaguaya, Sitajara, Yabroco and Susapaya.
- Candarave Province; the districts of Quilahuani, Candarave, Huanuara, Cairani and Camicala – producing areas: Quilahuani, Pallata, Talaca, Yucamani, Candarave, San Pedro, Marjani, Calleraco, Huiltavira, Huanuara, Ancocala, Cairani, Calacala, Yarabamba and Camilaca.
- Province of Jorge Basadre; Ilabaya district - producing areas: Cambaya, Borogueña, Vilalaca and Corahuaya.

## 4. Proof of origin

Each producer must keep a notebook of activities, detailing the activities carried out by date, location and maps of all plots, dates and harvest yields, storage sites, conditions and cleaning of equipment, among other observations.

For the control and traceability of the PDO Orégano de Tacna, an identification code will be implemented, according to the production sector in the geographic area and the ID number of the producer.

Internally, each producer of Orégano de Tacna will manage their own codes that must be registered in the Sales Register related to the productive seasonality, first or second harvest. It must be noted that this code must be mentioned together with the code assigned according to the production sector and the ID number of the producer, at the time of delivery of the product for its commercialization.

After the harvest, the producer takes his production to the collection center. There, the warehouse manager must verify that the producer is on the List of Associated Producers before receiving the product. Then, he proceeds to control the humidity and quality, and to fill out the "Reception Guide" that shows the delivery of the product to the collection center. At that time, the warehouse manager records a batch number.

Subsequently, the warehouse manager must record the information of the received product in the "Reception Register." The batch number assigned to the received product must be entered in the register before entering the product into the raw materials warehouse.

Once the batch is entered into the raw materials warehouse, the plant manager issues a "Process Order" in which he records the batches, the number of receipt guides, the quantities of products that must enter the process, the quality parameters, the quantities that must be obtained in said process, and the type of packaging that must be used.

At this stage, a new batch number can also be assigned to allow the identification of the physical stored in the plant and that corresponds to the collection records. The storage units used for products with Appellation of Origin must be labelled as "Orégano de Tacna with Appellation of Origin".

At the marketing level, the marketing/export records must include contract numbers, name of the buyer, invoice numbers, bills of lading, quantity and quality of the product with AO sold, weights, shipping dates, name of the port of shipment and the port of destination, and other data considered necessary.

To process the "Transaction Certificate", a copy of the commercial invoice and the bill of lading must be attached. Both documents must include the batch number with the Appellation of Origin that the exporter has assigned to the product. The exporter must also present information related to the products involved in the batch to be exported; that is, the packing list of how much each producer contributed to make up the batch.

## 5. Method of production

The specific steps in production are the following: (i) ground preparation, (ii) crop management, and (iii) harvest and post-harvest.

Now, the contribution of the producers of the PDO Orégano de Tacna can be appreciated through the development of various practices, ranging from the selection and preparation of the land to post-harvest activities such as drying, cleaning and classification.

It is noteworthy that the ancestral Inca practice of building, using and/or rehabilitating platforms with slopes exposed to the sun persists. This activity is complemented by the action of enriching the soil by incorporating organic matter. The platforms contribute to avoiding erosion and retaining water resources; and it also allows to take advantage of land located in difficult areas.

Likewise, it should be noted that fertilizing the land using only organic fertilizer, consisting of guano from the island, compost and decomposed manure, is extremely important.

On the other hand, the widespread use of planting cuttings in furrows with an established depth and distance stands out; having clearly established the method and frequency for the first watering and cutting of the oregano cuttings. All of this has an impact on the proper development of the plant, for example, very frequent watering causes yellowing plants and fungal problems. It should also be noted that the preparation and application of boill is part of the agricultural practice, and its effect is biocidal and as a growth stimulant.

Furthermore, considering the productive seasonality of the PDO Orégano de Tacna, the programming of each of the two annual harvests is responsibility of the producer, who, after establishing the commercial maturity of the plant, must evaluate the risk of rain and carry out tasks such as suspension of irrigation and weeding.

After harvesting, the drying process begins on blankets, for a maximum of 4 days in the sun, and up to 8 days in the shade. Furthermore, with the beating process carried out by the producers, the aim is to remove the leaves from the stems, trying to keep them whole. The product obtained, dried leaves and floral tops of oregano, are packed in 46 kg polypropylene bags to, if applicable, be transferred to the processing plants, where they will be destemmed and classified by size, the latter in accordance with the requirement of the destination market.

## 6. Link with the geographical area

- Climatic characteristics:

The geographical production area of the PDO Orégano de Tacna includes a strip of land with a semiarid climate, without humidity in winter and spring, which varies from cold to semi-frigid. It is located in the 4 provinces of the Tacna Region: Candarave, Tarata, Jorge Basadre and Tacna.

This area, which includes different heights, is located in the so-called living areas “Low montane desert formation” (up to 2,500 meters above sea level) with an arid climate, and

“Low montane desert scrub formation” (from 3,100 to 3,800 meters above sea level) with a cold temperate semi-arid climate; includes sandy loam type soils, and water sources from fountains or water springs, the same ones that allow the mobilization of nutrients from the soil to the oregano plantations.

Most of the cultivation areas are located between 3,000 to 3,500 meters above sea level, in the so-called bioclimatic unit warm temperate montane desert shrubland.

Likewise, in the delimited territory, conditions such as extreme temperature variations during the day and night, low availability of water resources, intensity of sunshine hours, lack of precipitation and low level of relative humidity occur.

It should also be noted that the harvest of the PDO Orégano de Tacna has a defined seasonality, which depends on the rains: (i) April and May, first harvest after the rains; and (ii) November and December, second harvest before the rains. Compared to other oregano-growing locations, the production area of the PDO Orégano de Tacna receives little rainfall, between 199 to 212 mm as an annual average, which produces permanent water stress in the plant.

Also, the proper development of the crop is linked to a certain climate and temperature, in this case autumn and winter. In this sense, the average temperatures in the area are 16.5°C during the day, and 3.5°C during the night, which determines the concentration of essential oils, particularly in the leaves of oregano plants.

On the other hand, it has been established that the annual accumulated sun hours are of 4200. This is an extremely important variable as it is associated with metabolic processes of oregano plants. This variable is related to the photosynthetic process and is linked to the production of Tymol and Carvacrol.

Regarding the annual average of relative humidity in the area of the PDO Orégano de Tacna, this is the one that has the lowest monthly averages compared to other oregano-producing localities. The lowest value was presented in Tarata with 57.9%, followed by Candarave with 61.8%. This factor facilitates the drying of the leaves, providing its particular consistency.

- Characteristics of the soils in the production area

The producing area includes plots distributed in platforms of the Tacna mountains, which is surrounded by volcanoes. Regarding the PH of the soils in the area, they are soils categorized as neutral. The evaluation of electrical conductivity determined that they are very slightly alkaline.

On the other hand, taking into account the percentage of calcium carbonate - $\text{CaCO}_3$ - in the soils of the area of the PDO Orégano de Tacna, a low value -0.36%- is found, which allows the soils to show a neutral PH level, which is appropriate for the good absorption of soil nutrients and which contributes to a good photosynthetic capacity.

Regarding the content of organic matter, the area has a low value. However, to enrich the soil, farmers incorporate decomposed manure and other products such as humus.

Regarding the soil category, considering that the following percentages were found: sand - 67.29%, silt - 23.71%, clay - 9.00%, it is concluded that it is a sandy loam soil (Ar.F). This type of soil allows oxygenation of the roots of the oregano plant and water infiltration, avoiding waterlogging.

Therefore, according to the studies submitted by the applicant, this type of soil is balanced and appropriate for the cultivation of oregano, by providing good retention of components and water.

- Characteristics of irrigation water in the production area

Establishing the characteristics of this natural factor is particularly important in regions with little rainfall, as is precisely the case in the production area of the PDO Orégano de Tacna.

The studies submitted by the applicant have determined the presence of a slightly alkaline PH level, which allows the soils to not become acidic and maintain good capacity for the exchange of elements between the soil and the oregano plant.

Furthermore, these studies detected slight differences with the other areas evaluated, in variables related to soil salinization, such as Electrical Conductivity (EC) and Total Dissolved Salts (TDS). Therefore, it is concluded that the waters of the producing area are appropriate for irrigation, particularly for plants that may show slight sensitivity to salts, as is the case with oregano, which due to excessive salinity of the irrigation or soil water can affect its growth and reach the wilting point sooner.

As a conclusion of the studies carried out, it is established that the PDO Orégano de Tacna tolerates salinity and adapts very well to the platform system, which also allows the crops to have soil with good drainage.

Now, the importance of the set of natural variables described above lies in the fact that their interaction with the oregano crops in the delimited production area contributes in an essential way to the determination of the particular characteristics present in the resulting product: Orégano de Tacna.

In this sense we have that, in the production area of the PDO Orégano de Tacna, in addition to the altitude of the area and the characterization of the sandy loam soils, two meteorological variables stand out the most, with respect to all the variables that have been evaluated in contrast with those of other oregano areas.

On the one hand, it is established that the producing area of the PDO Orégano de Tacna has a higher average of hours of sunshine and, on the other hand, a lower average of rainfalls is verified.

Considering then the aforementioned factors, it is concluded that their interaction contributes to generating in oregano crops a level of water stress such that it results in the production of a greater density of glandular trichomes, which are responsible for regulating the plant temperature and reduce water loss, resulting in the production of Tymol and Carvacrol, essential oils that play important roles in the plant's defense against pathogenic agents, and that specifically are responsible for the characteristic smell and flavor of the PDO Orégano de Tacna.

On the other hand, it is necessary to add that the low relative humidity of the area contributes facilitating the drying of the oregano leaves, determining the particular texture or consistency of the product called Orégano de Tacna.

## 7. Inspection body

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## 8. Labelling

Product labels must include the category and net weight of the product, producer code, parcel code, association name, batch number and date. They must bear the seal that identifies the product brand, "Orégano de Tacna con Denominación de Origen" (Appellation of Origin Orégano de Tacna), or any other type of term required according to the destination market.